The Factors Influencing the Adoption of Wireless Application Protocols Banking in Saudi Arabia

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Abstract

Former studies, such as by Bhattacherjee (2001); Yuen (2013) have concluded that a 1% expansion of e-banking adoption should result in an 18% drop in bank's operational costs. Consequently, the present paper aims to enhance banks' abilities with regards to retaining and expanding e-banking usage among their customers, which can be achieved by advancing the existing understanding of the critical antecedents of e-banking acceptance behaviour of both current and potential customers. Accordingly, the unified theory of acceptance and use of technology (UTAUT) has been adapted by this study as a reliable and validated theoretical framework to empirically assess possible elements that influence individuals to use wireless application protocols banking (WAPB). A survey was designed in accordance with the theoretical framework, then piloted and distributed to a sample of 336 e-banking users from the three largest cities in Saudi Arabia. It was found that effort expectancy accounts for the most influencing factor in users' intentions to use WAPB, which is inconsistent with former studies such as (Venkatesh et al., 2003). Also, performance expectancy, social influence and facilitating conditions variables were observed to be impacting users' intention to use WAPB, which is similar to previous studies (e.g. Mohammadi, 2015; Yu, 2012). The findings of this study represent the distinctiveness of the examined context (Saudi Arabia). This study is among the very early studies considering WAPB antecedents and employing the UTAUT framework.

Keywords: Banking Apps, Mobile Banking, Innovation Adoption, Age, Gender, Saudi Arabia.

1   Introduction

Due to the growth in internet usage in Saudi Arabia it was the country with second highest totel number of internet users in 2016 in the Middle East region (Internet World Stats, 2016). Thus, bank corporations have increased their investment in e-banking services, motivated by the expectancy that the use of e-banking technology will lower banks' expenses and enhance banks' positioning methods (Yuen, 2013). Wireless application protocols banking (WAPB) benefits customers with the availability of banking services mobility (Suoranta & Mattila, 2004) and the always-on functionality (Singh et al., 2010), while advancing banks with a critical cost reduction method. It has been found that mobile banking is largely practiced in developed countries, where almost all banks provide their customers with access to e-banking services (Mäenpää, 2006). The expansion of BWAP use and advancement has downsized the limitations of disabilities, geography and time (Yuen, 2013). Dasgupta et al. (2011) stated that the expansion to WAPB can present banks with a valuable commercial opportunity in offering their products to rural people, for whom internet access is often limited. Thus, customers targeted by WAPB are unlike customers targeted by internet banking (Sadi et al., 2010). However, the success of practicing WAPB services differs from one bank to another. Thus, the first objective of this study is considered to be significant, due to the lack of comprehensive knowledge of how to design successful WAPB services via identifying the elements that enhance its adoption by customers (Lee et al., 2007). Saudi Arabia, like other states, has seen a dramatic and significant rise in ICT recent years, accelerating the essential amendments in the banking style of Saudi Arabia. Consequently, all Saudi banks today offer online transactions, telephone banking, debit and credit smart cards, and international online accessibility.

Nonetheless, technology acceptance by the banks' targeted customers remains a critical concern of both practitioners and academics. The technology acceptance subject has drawn great attention from scholars (Al-Gahtani et al., 2007). The TAM and TAM2 models are extensively used, with some modifications due to the specific context's factors (Davis et al., 1989; Hasan, 2006). An extended framework of TAM and TAM2 was proposed by Venkatesh and Davis (2000), which argues for the identification of the influence of cognitive instrumental and social influence on usage intentions and perceived usefulness. Accordingly, Venkatesh et al. (2003) combined the different models into a one comprehensive model, titled the unified theory of acceptance and use of technology (UTAUT).

Although a large number of studies have been conducted in relation to internet banking, there is a lack of knowledge regarding the understanding of customers' adoption of WAPB, as argued by scholars such as Yu (2012) and Suoranta and Mattila (2004); therefore, additional research is required to further examine the influential factors of customers' adoption of WAPB. In addition, the UTAUT model remains under-researched in a non-Western conservative context; thus, the second objective of this study is to empirically examine the

UTAUT model in Saudi Arabia as an Eastern culture and a conservative context. Thus, the primary contribution of this study is to apply UTAUT as the latest and most comprehensive model to explain intention to adopt or not adopt WAPB in Saudi Arabia. It is expected that the results of this study could be used to enhance banks' online services to better satisfy customers' needs.

2   Literature Review

2.1   WAPB

Wireless application protocols banking (WAPB) in this study refers to e-banking that utilities wireless technology devices (e.g. mobile phone or tablets) to provide mobile financial services to customers. It was reported by CGAP (2013) that, according to the GSMA's (2012), there are presently 150 live mobile money operations in 72 states, with 41 operations having been introduced in 2012 only. Worldwide, 82 million customers are recorded, 30 millions of which have operating accounts. It was stated by The-World-Bank (2009) that, currently, mobile phones are expanding worldwide more than PCs, which enhance banks' ability to develop a close and appreciated relationship with their customers by offering convincing banking services. Singh et al. (2010) argued that mobile banking (e.g. WAPB) applications advanced the standard of e-banking services due to the consumer's ability to practice most the banking enquiries at their convenience. Due to this banking improvement, banks gain a crucial tool to establish a better connection with their present and prospective clientele.

Most former studies conducted in relation to the e-banking subject have employed integrated frameworks based on the most recognised models, which were proposed to assess technology innovation adoption. These models are named as follows: diffusion of innovation theory DIT (Rogers, 1995), theory of reasoned action TRA (Ajzen & Fishbein, 1980), theory of planned behaviour TPB (Ajzen, 1991), theory of technology acceptance TAM (Davis et al., 1989), and social cognitive theory SCT (Luszczynska & Schwarzer, 2005). Rogers (1995) concluded that an innovation acceptance process by users is impacted by the innovation's features, such as compatibility, observability, trialability, relative advantages and complexity. Davis et al. (1989) argued that users' adoption of an innovation such as WAPB is linked to their perceived ease of use and usefulness. Venkatesh et al. (2003) combined the models of TPB, TRA, TAM, SCT and DIT into one unique model titled UTAUT. UTAUT is regarded as a broad framework that can explain innovation acceptance within a segmented group. IS was proposed via a study conducted by Delone and McLean (2003) and was developed based on their own previous model but included service quality as an information quality new factor. Delone and McLean (2003) stated that client enquiries are better to be assessed in accordance with both intention to adopt and adoption behaviour. Later, the updated IS model was employed by studies such as Yu (2012) through which they aimed to evaluate the factors influencing consumers in using mobile banking. The UTAUT model was further tested by Mohammadi (2015) in relation to the Iranians' behaviour towards the e-banking system. He included it in his study effort expectancy, social influence, facilitating conditions and performance expectancy as UTAUT factors. Mohammadi (2015) concluded that performance expectancy, effort expectancy, social influence and facilitating conditions are the influential factors in the intention to adopt e-banking services.

2.2   Performance Expectancy

Performance expectancy is the level to which consumers consider that practicing a method will provide a benefit and achieve improvements in job performance. Thus, in the UTAUT model, performance expectance is generated from perceived usefulness in TAM models, relative advantage in IDT, outcome expectations in SCT, and extrinsic motivation in MM. However, concerning mobile banking, it has been concluded that the perceived relative advantages are positively correlated to consumer mobile banking adoption (Dasgupta et al., 2011). Considering the above findings, this study proposes the following hypothesis;

H1: Performance expectance significantly affects consumer intention to use WAPB.

2.3   Effort Expectance

Effort expectancy is identified as the degree of suitability perceived for using a method (Mohammadi, 2015). Based on the review of former models, in UTAUT Venkatesh et al. (2003) included the notion of perceived ease-of-use in TAMs and complexity in IDT to express effort expectation as the level of ease allied with technology practice. Previous studies guided by the UTAUT, such as Park et al. (2007), included factors of performance expectancy, social influence and effort expectancy to determine what impacts consumer intention to adopt mobile banking. Park found that effort expectance strongly impacts people's intention to practice mobile banking. Accordingly, this study hypothesises that;

H2: Effort expectation significantly influences consumer intention to practice WAPB.

2.4   Social Influence

Subjective norms from TPB, TRA and TAM2, and image in IDT were reflected by Venkatesh et al. (2003) in

UTAUT via the construct of social influence. Social influence is defined as the degree to which consumers perceive that valued others trust that they should practice a technology (Yu, 2012). It was determined by Amin et al. (2008) that people's intention to practice mobile banking was strongly influenced by their reference groups, such as family members and friends, whereas former studies, such as Sripalawat et al. (2011), determined that the subjective norms concept was a significant impactor. Nevertheless, Dasgupta et al. (2011) revealed that consumers' willingness to use mobile banking was significantly affected by the consumers' perceived image. Thus, this study hypothesises that;

H3: Social influence significantly affects consumer's intention to practice WAPB.

2.5 Facilitating Conditions

Facilitating conditions are defined by Venkatesh et al. (2003) as the extent to which a consumer considers that the administrative and technical infrastructures are available to enhance the use of the intended system. Based on practical findings Venkatesh et al. (2003) concluded that adoption behaviour is directly determined via both behavioural intention and facilitating conditions. It has been stated by former studies such as (e.g. Goh et al., 2014; Singh et al., 2010) that the level of convenient access of consumers to the internet is positively and strongly correlated with consumers' acceptance and practicing level towards e-banking such as WAPB. Therefore, the following hypothesis is developed;

H4: Facilitating conditions significantly influence consumer usage of WAPB.

Unlike former studies, this study does not include perceived self-efficacy, perceived credibility, or the moderators of age, income and experience. The reasons are: first, this study is not a longitudinal study, thus the present study is unable to capture variance levels of experience with variance timing; second, this study's financial sources, manpower, and response ratio mainly determine the quantity of elements examined in the survey, therefore the present study excludes any moderators to survey the extent to which the effects of performance expectancy, effort expectance, social influence and facilitating conditions on behavioural intention to use WAPB in the Saudi context.
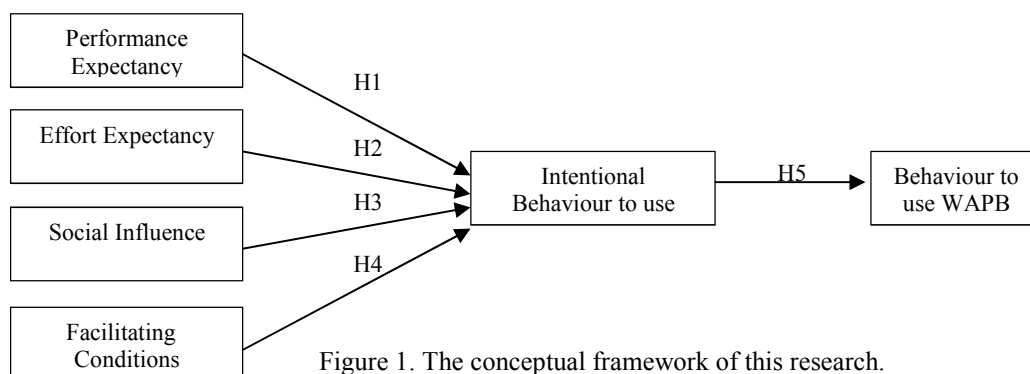

Figure 1. The conceptual framework of this research.

2.6 Behavioural Intention to Adopt WAPB

It has been largely argued within the psychological literature that personal behaviour is anticipated via examining personal intention (Yu, 2012). Such an argument was additionally supported by former findings produced by employing the UTAUT model, which indicated that behavioural intention significantly impacts an innovation's adoption (Venkatesh et al., 2003). Thus, behavioural intentions to adopt WAPB is post-acceptance behaviour that engages the replication use of e-banking services in the near future (Ali et al., 2012). Accordingly, financial firms link their internet-based "in this study WAPB" success to the degree of retaining an individual's behavioural intention to practice WAPB services and not only experience a one-time use (El-Kasheir et al., 2009; Sadi et al., 2010). Relatively, few former studies have encouraged future research to consider the nature of the relationship among behavioural intention and actual behaviour in the WAPB context (e.g. Mohammadi, 2015; Yu, 2012). Therefore, this study hypothesises that;

H5: Behavioural intention significantly affects consumer behaviour of adopting WAPB.

3 Methods
3.1 Survey Design:

This study was guided by well-recognised former studies related to e-banking, such as (Luarn & Lin, 2005; Sripalawat et al., 2011; Venkatesh et al., 2003; Yu, 2012), therefore, behavioural intention is regarded as the extent to which an individual is willing to adopt WAPB, performance expectance regarded as the degree to which an individual thinks that using WAPB will enhance banking performance, effort expectance regarded as

the extent to which an individual trusts that practicing WAPB is easy or not, social influence regarded as the extent to which an individual believes that their use of WAPB would be appreciated by important others, and finally, facilitating conditions regarded as the extent to which an individual trusts that they can acquire the required setting to encourage the practice of WAPB. The survey was content-validated in accordance with the fact that all included items were adapted from former research to suit the considered context of this study, namely Saudi Arabia, which can be justified by the fact that this study is one of the very earliest to examine WAPB adoption behaviour via UTAUT in the Saudi banking system. Accordingly, a focus group was conducted by this study that included three practitioners and three academics who were asked to evaluate the finalised questionnaire's items based on the following criteria: first, the extent of measurability fitting to the adopted meaning of all concepts under consideration; second, the extent to which an item is suitable in an e-banking context; and third, the degree to which an item is reflective of consumer perceptions when using e-banking (Yu, 2012). (See table 1).

Next, the finalised questionnaire was pre-tested with 12 participants (6 business academics, both male and female, 3 business students and 3 undergraduate students), who were asked to complete the questionnaire and give feedback regarding miswording, inconsistency, clarity and the degree to which each variable was significantly related to the assigned construct. Accordingly, a few changes were made to the questionnaire to enhance clarity. Consequently, the finalised copy of the questionnaire included two parts with a total of 25 items. The first part included 20 items that were designed to evaluate the five constructs of behavioural intention, facilitating conditions, performance expectance, effort expectance and social influence (refer to Table 1). The reliability of the finalised survey was evaluated via SPSS and PLS and Cronbach alpha and the yield was .87. The first part of the survey's items used to measure the constructs in this research were based on a 7 point Likert scale that was adapted from former validated measurements, containing a 7 point Likert scale ranging from 1 (very strongly disagree) to 7 (very strongly agree). The second part of the survey included five items that were designed to gain participants' demographic variables of gender, age, occupation, education level and income level.

In January 2017, the forms were electronically distributed online to a non-random sample drawn from banks customers in Saudi society as the present study's population. The non-random convenience sampling technique was based on the willing contribution by the respondents. This technique was used due to time restrictions, speed, cost efficiency and convenience to obtain better illustrative responses of the whole of Saudi society. The method of non-random sampling has been frequently used in marketing (Alam & Sayuti, 2011; Lada et al., 2009; Mukhtar & Mohsin Butt, 2012). In accordance with this, contributors who decided to complete the questionnaire were moved to a new window where the survey questions were offered and their answers were automatically gathered. After eliminating the incorrectly completed or unresponsive cases, 336 usable questionnaires were obtained from the total of 450 questionnaires sent out, revealing a response rate of over 84 per cent. The measures of behavioural intention were adapted from three items from Abd Rahman et al. (2015) and Sripalawat et al. (2011), containing 7 point Likert scales ranging from 1 (very strongly disagree) to 7 (very strongly agree), concerning participants' willingness to use WAPB. To measure performance expectance, this study adapted four items from Luarn and Lin (2005) and Yu (2012), containing 7 point Likert scales ranging from 1 (very strongly disagree) to 7 (very strongly agree), concerning participants' perception of how using WAPB will enhance their banking performance. Measures of effort expectance, adapted from four items from Sripalawat et al. (2011) and Yu (2012), contain 7 point Likert scales ranging from 1 (very strongly disagree) to 7 (very strongly agree), concerning participants' ease of use of WAPB. Measures of social influence, adapted from four items of Venkatesh et al. (2003), Sripalawat et al. (2011) and Yu (2012), contain 7 point Likert scales ranging from 1 (very strongly disagree) to 7 (very strongly agree), concerning participants' reference groups' view of them when using WAPB. Measures of facilitating conditions, adapted from four items from Venkatesh et al. (2003), Sripalawat et al. (2011) and Yu (2012), contain 7 point Likert scales ranging from 1 (very strongly disagree) to 7 (very strongly agree), concerning participants' acknowledgment of obtaining the least requirements to use WAPB.

4   Data Analysis

Since this study was guided by former UTAUT papers, such as Venkatesh et al. (2003) and Sripalawat et al. (2011), the data were analysed via the invariance-based Partial Least Squires (PLS) software in addition to a few additionally reasons: first, the framework that the present research was intended to examine contains five constructs. Therefore, this theoretical model is perceived to be complex, according to Hair et al. (2012), and thus, the PLS-SEM method is the most appropriate for data analysis. Second, Dijkstra (1983) indicated that PLS is far from normal as well as a distribution-free technique that targets only consistency, which is what was required for the present study to estimate the proposed hypothesis. Third, there has been a limitation in employing the PLS-SEM technique in studies related to consumer behaviour to the best of the author's knowledge, so its use here adds on a new contribution.

Next, the factorability of the sub-dimensional items (20) was examined via SPSS 24 based on the Kaiser-Meyer-Olkin (KMO) test and the Bartlett's Test of Sphericity. The outcomes of each test were as follows: first, the KMO test for the 20 items was .910, which is regarded as a 'Marvellous' result by DeVellis (2011). Second, the results of Bartlett's Test of Sphericity were approx. Chi-Square = 430.701 and df = 2032 (P<0.000), which is regarded as a significant Chi-Square. Accordingly, the observed data revealed a very high factorability. Also, the anti-image correlation matrix of the entire 20 items was tested. All assessed items attained diagonals greater than 0.5 and most of them were greater than 0.7, which is favoured by Field (2009). Next, the Principal Components Analysis (PCA) through the Promax rotation technique was conducted on the 20 items.

Table 1. Items standardised loadings, GoF, R^2, RSMS, Chi-Square, CR, AVE, Cronbach's alpha, f^2, values. WAPB Usage 'WAPB.U'.

Constructs/ Items	Factors loadings	CR	AVE √VAE	α	f^2	R^2	C
Intentional Behaviour:		.88	.70 .84	.81	.14	.56	.53
_IB1_. I prefer to Use WAPB.	.724						
_IB2_. I intend to use WAPB.	.750						
_IB3_. I would use WAPB.	.870						
_IB4_: I choose to use WAPB.	.861						
Social Influence:		.87	.70 .84	.80	.04		.64
_SI1_. People important to me would think that I should use WAPB.	.772						
_SI2_. People who are like me think that I should use WAPB.	.846						
_SI3_. People who surround me are using WAPB.	.857						
Effort Expectancy:		.88	.66 .82	.84	.14		.78
_EE1_. Learning to use WAPB is easy for me.	.815						
EE_2_. Becoming skilful at using WAPB is easy.	.775						
_EE3_. Interaction with WAPB is easy for me.	.825						
_EE4_. I would find WAPB easy to use.	.850						
Facilitating Conditions:		.85	.80 .91	.70	.10		.73
_FC1_. My living environment supports me to use WAPB.	.931						
_FC2_. My working environment supports me to use WAPB.	.818						
_FC3_. Using WAPB is compatible with my life.	(removed)						
_FC4_. Help is available when I have a problem using WAPB.	(removed)						
WAPB.U		.87	.63 .80	.80		.62	.70
Performance Expectancy:		.92	.90 .93	.90	.05		.77
_PE1_. Using WAPB would improve my performance.	.932						
_PE2_. Using WAPB would save my time.	.940						
_PE3_. I would find WAPB useful.	.887						
_PE4_. I would use WAPB anyplace.	(removed)						
Average R^2 and Communalities						.59	.67
GoF	.78						
SRMR saturated/estimated	.092/.130						
Chi-Square saturated/estimated	382.765/430.701						
Model-Fit	**_Saturated Model_**			**_Estimated Model_**			
SRMR	.092			.130			
Chi-Square	.382.765			430.701			

Note_:_ indicators' loadings included were ≥ 0.70 (Bentler & Huang, 2014; Hair et al., 2011). C (communality).

$$GoF = \sqrt{Average\ R^2 * Average\ communalities^2}$$.

Consequently, an interpretable framework with five dimensions' solutions was constructed with Eigenvalue >1 and factor loadings >0.5, which explains the 61% of variance. Accordingly, four items were excluded due to their low factor loadings and they were as follows: one item was removed from performance expectancy (PE3), one item was removed from social influence (SI4), and two items were removed from

facilitating conditions (FC3 and FC4). However, it can be argued that the adapted model of UTAUT presents the capability of determining adoption intention behaviour in e-banking context.

4.1 Framework Fit and Hypotheses Testing

The model of this study achieved a good fit in accordance with the attained values of goodness of fit 'GoF' 0.346, and the path coefficient 'β' estimates ranged between 0.543 and 0.021, effect size 'f^2' ranged from 0.00 to 0.043, and coefficient of determination 'R^2' 0.651. The introduced propositions of this study were evaluated according to β standards amongst the independent and dependent constructs, and β values that surpassed T value of 1.96 with $\rho \le 0.05$ are considered as significant and the propositions are supported correspondingly. The hypothesised significant relationship between IB on B (H1) was supported on the grounds of its significance at p<0.00 and T-value of 16.298. Following the hypothesised positive impacting link directed from PE to IB (H2), this was determined to be significant at p<0.00 and T-value of 18.065. The significant impact of EE on IB (H3) was evidenced to be supported and consequently this hypothesis was established, with a significance level of p< 0.000 and a T-value of 16.567. The next proposition was grounded on the significant effect of SI on IB (H4), and it was confirmed according to the detected significant T-value 9.846 at p< 0.000. Lastly, the propositioned significant influence of FC on IB (H5) was established with a significance level of p< 0.00 and T-value 10.348.

Table 2. Inter-correlations and descriptive findings.

Construct	EE	FC	IB	PE	WAPB.U	SI
EE	.817					
FC	.396	.876				
IB	.474	.158	.808			
PE	.435	.633	.231	.920		
WAPB.U	.673	.301	.382	.462	.825	
SI	.551	.475	.412	.430	.528	.796

Note: Effort expectancy 'EE', Performance expectancy 'PE', Social influence 'SI', Facilitating conditions 'FC', Behavioural intention 'IB', Usage of WAPB 'WAPB.U'.

4.2 Validities

The results show that the GoF of this study's framework was within the sufficient range at a rate of 0.78; consequently, the framework of this study was proven to be at a sufficient rank (Chin, 1998; Götz et al., 2010). Moreover, the convergent validity was assessed by two acknowledged methods. First, because the items' loadings cut-off point implemented by this study was ≥ 0.70, the examined model can be considered as valid (Steenkamp & Van Trijp, 1991). Second, the Average Variance Extracted (AVE) validity technique was conducted independently for each construct of the model. The most widely accepted calculation for AVE estimation purposes is Fornell and Larcker (1981),t which is employed by Smart PLS 3.2.6. The adapted constructs' AVEs were specified to be adequate through the PLS estimation (See Table 2) for more details of the AVE values.

Third the discriminant validity of the model was assessed as follows: first, we employed the technique from Fornell and Larcker (1981), which compares diagonal elements (DE=square root of AVE) and off-diagonal elements (ODE=correlations between constructs) of the model under consideration. The discriminant validity is established for a model once the lowest DE values are greater than the ODE values (Byrne, 2001). According to the intercorrelation among the model's constructs results, the highest correlation between two constructs was 0.67 and the lowest DE was 0.80. Therefore, the ODE values between the models' constructs were less than the AVEs and AVEs roots. So, it can be argued that the discriminant validity of the model is established.

Second, the discriminant validity evaluation through the cross loading technique presented by Chin (1998) was conducted. Chin (1998) stated that an indicator's loading on its primary construct must be higher than its loading on all other constructs, as presented in Table 2. Accordingly, the discriminant validity is furthermore established according to Chin (1998) approach.
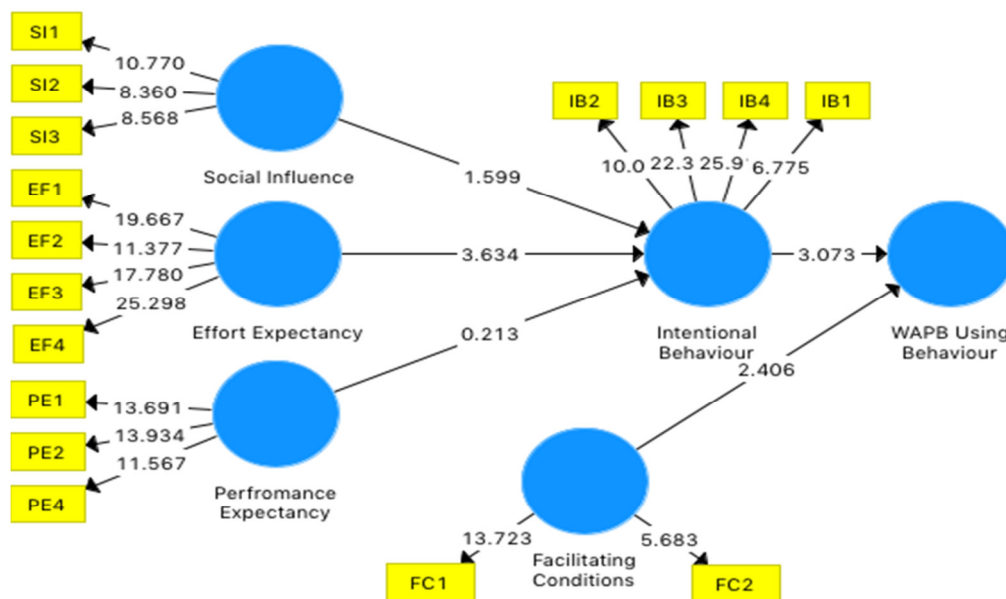
Figure 2. Bootstrapping of the conceptual model of this study with (5000 sample option).

5   Discussion and Conclusion

Figure 2 illustrates that the variance explained by the constructs of BI and WAPB.U was .56 and .62, respectively. Therefore, this research empirically confirmed the UTAUT framework's applicability to determine e-banking consumers' usage behaviour of WAPB in Saudi society. The propositioned significant influential relationships between performance expectancy, social influence and effort expectancy towards consumer intention to use WAPB were observed to be significant at a P-value of 0.001. Additionally, it was observed that facilitating conditions have a significant influence on the real usage behaviour of WAPB among banks' customers in Saudi Arabia at P-values of 0.002 and 0.01. In contrast to former studies such as Sripalawat et al. (2011); Yu (2012), this study observed that the most vital influential variable on intention to use WAPB is effort expectancy, with a path coefficient value of 0.361 and a T-value of 3.748. Thus, this research is amongst the very few UTAUT-related studies concluding that effort expectancy does have an outstanding role in influencing consumers' intention to use WAPB/mobile banking. This can be justified by arguing that the WAPB has much improved along with other related aspects, such as wireless telecommunication technology and e-banking services, which has resulted in the development of confident experiences among consumers. Additionally, the large land size of Saudi Arabia plus the wide acceptable convergence of telecommunication services can be regarded as a strong motivation to use WAPB, as this involves far less effort than physically visiting a bank. In consistence with the findings by Davis et al. (1989); Venkatesh and Davis (2000), this research has found that performance expectancy positively and significantly impacts consumers' intention to use WAPB. Therefore, the more consumers believe that using WAPB will advance their banking performance, the more likely they are to be willing to adopt WAPB. Furthermore, the findings show that social influence strongly influences consumer intention to use WAPB, which is consistent with the findings by Venkatesh and Davis (2000) and Mohammadi (2015). Next, the analysis revealed that the facilitating conditions variable strongly influences WAPB users' real usage behaviour. Accordingly, it is strongly recommended that banks ensure the availability of the necessary resources, help and guide as well as information. Consequently, the findings of this study further support the findings of former studies (e.g. Ajzen, 1991; Rogers, 1995; Taylor & Todd, 1995; Venkatesh et al., 2003).

The present research has readdressed the acknowledged gaps of the literature related to the usage behaviour of WAPB/mobile banking as well as its vital antecedents (performance expectancy, effort expectancy, social influence, facilitating conditions and intentional behaviour). Consequently, this research has further demonstrated the reliability and validity of the UTAUT framework and its ability of predict 61% of consumers' usage behaviour of WAPB/mobile banking, which accordingly represents one the very early studies employing the UTAUT model in the Saudi banking context.

6   Implications and Future Research

This study employed the UTAUT model and appeared to effectively assess the intentional behaviour and actual behaviour towards WAPB in Saudi Arabia. Consequently, financial firms operating in the Saudi market are recommended to ensure the availability of the necessary resources, help and guidelines as well as information, and are also advised to design a marketing mix based on behavioural perception, which would enhance positive

social influence and positive performance expectations. Despite the adequate reliability and validity of this research's conclusions, a few recommendations for forthcoming investigation are noted; these are as follows: first, although this study has advanced the literature concerning WAPB/mobile banking in a very distinctive Islamic setting (Saudi Arabia), due to the time resource limitation, an additional investigation related to possible moderators such as age, gender, income, location and education would surely advance the existing related knowledge. Second, upcoming studies are encouraged to search potential further antecedents of the intentional behaviour to use WAPB/mobile banking, such as perceived attributes of an innovation; for example, complexity and compatibility (Rogers, 1995) as well as perceived self-efficacy, perceived financial cost and perceived credibility (Yu, 2012). This would represent an essential phase towards an enhanced notional understanding of consumer purchasing behaviour towards *Halal* cosmetics and other innovated *Halal* products.

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